EDMUND W. BROWN

The inventor named in this divisional application is the same inventor named in the prior application.

The assignee's status as a small entity was established in the parent application and is still proper.

Please amend the application as follows:

IN THE TITLE:

Please amend the title as follows:

- - - DAMPENING CYLINDER FOR TRANSFER MECHANISM - - -

IN THE SPECIFICATION:

The divisional application is amended as follows: below the title of the invention and preceding the "Field of the Invention," please insert:

--Related Application

This application is a division of application Serial No. 09/649,835, filed August 29, 2000.---

Page 1, line 5 after "a" and before "transfer" insert - - - dampening cylinder for a - - -

Cancel page 2, line 4 through page 5, line 17 and insert the following:

- - Therefore, it is a primary object and feature of the present invention to provide a dampening cylinder for a transfer mechanism which transfers a load between a first upper conveyor and a second lower conveyor.

It is a further object and feature of the present invention to provide a dampening cylinder for a transfer mechanism which controls the movement of the transfer mechanism between a first upper conveyor; a second lower conveyor; and an intermediate position wherein a load being transferred may be acted upon.

It is a still further object and feature of the present invention to provide a dampening cylinder for a transfer mechanism which transfers a load between an upper conveyor and a second lower conveyor which is simple and inexpensive to manufacture.

In accordance with the present invention, a dampening cylinder is provided. The dampening cylinder includes a cylindrical housing having first and second ends and an inner surface defining a cavity in the housing for receiving a fluid therein. A piston slidably extends through the cavity in the housing. A flange projects from the piston within the cavity so as to divide the cavity in the housing into first and second portions. The flange terminates at a radially outer edge which forms a slidable interface with the inner surface of the housing. A flow conduit has a first end communicating with the first portion of the cavity in the housing and a second end communicating with the second portion of the housing. The flow conduit includes first and second flow control valves for controlling the flow of fluid between the first and second portion of the cavity in the housing.

The first control valve includes first and second orifices interconnected by first and second parallel flow paths. The first control valve includes a flow regulator movable between a first retracted position wherein the flow regulator is removed from the first flow path and a second extended position wherein the flow regulator extends into the first flow path. A check valve is disposed in the second flow path of the first control valve. The check valve allows for the flow of fluid through the second flow path in a first direction and prevents the flow of fluid through the second flow path in a second direction.

The second flow control valve also includes first and second orifices interconnected by first and second parallel flow paths. The first and second flow control valves are connected in series. The second flow control valve includes a flow regulator movable between a first retracted position wherein the flow regulator of the second control valve is removed from the first flow path of the second flow control valve and a second extended position wherein the flow regulator of the second flow control valve extends into the first flow path of the second flow control valve. A check valve is disposed in the second flow path of the second flow control valve. The check valve of the second flow control valve allows for the flow of fluid through the second flow path of the second flow control valve in the second direction and prevents the flow of fluid through the second flow path of the second flow control valve in the first direction.

In accordance with a further aspect of the present invention, a dampening cylinder is provided. The dampening cylinder includes a cylindrical housing having first and second ends and an inner surface defining a cavity in the housing for receiving a fluid therein. A piston slidably extends through the cavity in the housing. A flange projects from the piston and is positioned within the cavity so as to divide the cavity in the housing into first and second portions. The flange terminates at a radially outer edge which forms a slidable interface with the inner surface of the housing. A first conduit has a first end communicating with the first portion of the cavity in the housing and a second end. A second conduit has a first end communicating with the second portion of the cavity in the housing and a second end. A control valve structure is disposed between first and second conduits for controlling the flow of fluid between the first and second portions of the cavity in the housing.

The control valve structure includes first and second flow control valves connected in series between first and second conduits. The first flow control valve includes first and second orifices interconnected by first and second parallel flow paths. The first orifice communicates with the first portion of the cavity through the first conduit. The first flow control valve includes a flow regulator movable between a first retracted position wherein the flow regulator is removed from the first flow path and a second extended position wherein the flow regulator extends into